

What is claimed is:

1. An amplification apparatus for amplifying acoustic signals, comprising:
a controller for detecting in real time a frequency band at the highest level of the acoustic signals through frequency analysis of the acoustic signals that vary over time, and for generating a control signal to raise a gain for signals of a higher frequency range than the detected frequency band at the highest level; and

a first amplifier, in which the control signal from said controller is inputted, for amplifying the acoustic signals by increasing the gain for signals of the higher frequency range than the detected frequency band, wherein frequency characteristics of the first amplifier are controlled depending on the detected frequency band, and

wherein the controller comprises a second amplifier whose gain is a function of the frequency.

2. An amplification apparatus for amplifying an acoustic signals comprising:
a controller for detecting in real time a frequency band at the highest level of the acoustic signals through frequency analysis of the acoustic signals that vary over time, and for generating a control signal to raise a gain for signals of a higher frequency range than the frequency band at the highest level; and

a first amplifier, in which the control signal from said controller is inputted, for amplifying the acoustic signals by increasing the gain for signals of the higher frequency range than the frequency band at the highest level, wherein frequency characteristics of the first amplifier are controlled depending on the detected frequency band, and

wherein the first amplifier, comprises an amplification apparatus in which a plurality of sub-amplifiers with different frequency characteristics, each capable of gain control, are connected in parallel, and the outputs of the plurality of sub-amplifiers are added together.

3. An amplification apparatus for amplifying an acoustic signals comprising:
a controller for detecting in real time a frequency band at the highest level of the acoustic signals through frequency analysis of the acoustic signals that vary over time, and for generating a control signal to raise a gain for signals of a higher frequency range than the frequency band at the highest level; and

a first amplifier, in which the control signal from said controller is inputted, for amplifying the acoustic signals by increasing the gain for signals of the higher frequency range than the frequency band at the highest level, wherein frequency characteristics of the first amplifier are controlled depending on the detected frequency band, and

wherein said controller comprises a band-pass filter group, a diode matrix, and a comparator group.

4. An amplification apparatus for amplifying an acoustic signals, comprising:
a controller for detecting in real time a frequency band at the highest level of the
acoustic signals through frequency analysis of the acoustic signals that vary over time, and
for generating a control signal to raise a gain for signals of a higher frequency range than the
frequency band at the highest level; and

a first amplifier, in which the control signal from said controller is inputted, for
amplifying the acoustic signals by increasing the gain for signals of the higher frequency
range than the frequency band at the highest level, wherein frequency characteristics of the
first amplifier are controlled depending on the detected frequency band, and
wherein said first amplifier comprises a parametric equalizer.

5. An amplification apparatus, comprising:
a detecting circuit for detecting in real time a first frequency band at the highest level
of input acoustic signals that vary over time; and
an amplifier for amplifying an input acoustic signals that vary over time and
generating an output acoustic signals, and
wherein the amplifier has a frequency characteristic including a first gain region
which has a constant gain for frequencies equal to or lower than the first frequency band,
and a second gain region whose gain increases higher than the first gain region, according
to frequency, for frequencies higher than the detected first frequency band; and an increase
point between the first and second gain regions changes according to the detected first
frequency band.

6. An amplification apparatus, comprising:
an analog-to-digital processor converting an analog audio signal into a digital audio
signal;
a digital signal processor detecting a first formant frequency in the digital audio signal
and amplifying components of the digital audio signal having a frequency higher than the first
formant responsive to the detection; and
a digital-to-analog converter coupled to the digital signal processor and converting
the digital audio signal into an analog audio signal.

7. An amplification method, comprising:
detecting a first formant frequency in a digital audio signal; and
amplifying components of the digital audio signal having a frequency higher than the
first formant responsive to the detecting.

8. An amplification apparatus for amplifying an acoustic signals, comprising:
a controller for detecting in real time a frequency band at the highest level of the
acoustic signals through frequency analysis of the acoustic signals that vary over time, and
for generating a control signal to raise a gain for signals of a higher frequency range than the
detected frequency band at the highest level; and

a first amplifier, in which the control signal from said controller is inputted, for
amplifying the acoustic signals by increasing the gain for signals of the higher frequency
range than the frequency band, wherein frequency characteristics of the first amplifier are
controlled depending on the detected frequency band.

9. An amplification apparatus for amplifying an acoustic signals, comprising:
an A/D converter provided on the side where the acoustic signals are inputted, for
converting analog signals of the acoustic signals into digital signals;

a digital signal processor for detecting in real time a frequency band at the highest
level of the digital signals through frequency analysis of the digital signals that are outputted
from the A/D converter and vary over time, and then for generating a control signal for
raising a gain for signals of a higher frequency range than the detected frequency band at
the highest level, and then for amplifying the digital signals by increasing the gain for signals
of the higher frequency range than the detected frequency band, according to the control
signal; and

a D/A converter for converting the digital signals outputted from the digital signal
processor into analog signals.

10. An amplification apparatus for amplifying an input acoustic signals that vary
over time, comprising:

a control circuit for detecting a first frequency band at the highest level of the input
acoustic signals and for generating a control signal according to the detected first frequency
band; and

an amplifier for amplifying the input acoustic signals so as to generate an output
acoustic signals, wherein the amplifier has a frequency characteristic including a first gain
region which has a constant gain for frequencies equal to or lower than the detected first
frequency band, and a second gain region whose gain increases higher than the first gain
region, according to frequency, for frequencies higher than the detected first frequency band;
and in response to the control signal, an increase point between the first and second gain
regions changes according to the detected first frequency band.

11. An amplification apparatus, comprising:
a detecting circuit for detecting in real time a first frequency band at the highest level of input acoustic signals that vary over time; and
an amplifier for amplifying an input acoustic signals that vary over time and generating an output acoustic signals, and
wherein the amplifier has a frequency characteristic including a first gain region which has a constant gain for frequencies equal to or lower than the first frequency band, and a second gain region whose gain increases higher than the first gain region, according to frequency, for frequencies higher than the detected first frequency band; and an increase point between the first and second gain regions changes according to the detected first frequency band.

12. An amplification apparatus, comprising:
an analog-to-digital processor converting an analog audio signal into a digital audio signal;
a digital signal processor detecting a first formant frequency in the digital audio signal and amplifying components of the digital audio signal having a frequency higher than the first formant responsive to the detection; and
a digital-to-analog converter coupled to the digital signal processor and converting the digital audio signal into an analog audio signal.

13. An amplification apparatus processing method, comprising:
detecting a first formant frequency in the digital audio signal; and
amplifying components of the digital audio signal having a frequency higher than the first formant responsive to the detecting.

14. An amplification apparatus processing method, comprising:
detecting a first formant frequency in the digital audio signal; and
amplifying a second formant of the digital audio signal having a frequency higher than the first formant responsive to the detecting.